

to its sine of refraction as four to three; the sine of incidence of that ray out of Glass into Water will be to its sine of refraction as 20 to 31 and 4 to 3 jointly, that is, as the Factum of 20 and 4 to the Factum of 31 and 3, or as 80 to 93.

And these Theorems being admitted into Opticks, there would be scope enough of handling that Science voluminously after a new manner; not only by teaching those things which tend to the perfection of vision, but also by determining mathematically all kinds of Phenomena of Colours which could be produced by refractions. For to do this, there is nothing else requisite than to find out the separations of heterogeneous rays, and their various mixtures and proportions in every mixture. By this way of arguing I invented almost all the Phenomena described in these Books, beside some others less necessary to the Argument; and by the successes I met with in the tryals, I dare promise, that to him who shall argue truly, and then try all things with good Glasses and sufficient circumspection, the expected event will not be wanting. But he is first to know what Colours will arise from any others mixt in any assigned Proportion.

PROP. IV. THEOR. III.

Colours may be produced by composition which shall be like to the Colours of homogeneous Light as to the appearance of Colour, but not as to the immutability of Colour and constitution of Light. And those Colours by how much they are more compounded by so much are they less full and intense, and by too much composition they may be diluted

diluted and weakened till they cease. There may be also Colours produced by composition, which are not fully like any of the Colours of homogeneous Light.

For a mixture of homogeneous red and yellow compounds an orange, like in appearance of Colour to that orange which in the series of unmixed prismatic Colours lies between them; but the Light of one orange is homogeneous as to refrangibility, that of the other is heterogeneous, and the Colour of the one, if viewed through a Prism, remains unchanged, that of the other is changed and resolved into its component Colours red and yellow. And after the same manner other neighbouring homogeneous Colours may compound new Colours, like the intermediate homogeneous ones, as yellow and green, the Colour between them both, and afterwards, if blue be added, there will be made a green the middle Colour of the three which enter the composition. For the yellow and blue on either hand, if they are equal in quantity they draw the intermediate green equally towards themselves in composition, and so keep it as it were in equilibrio, that it verge not more to the yellow on the one hand, than to the blue on the other, but by their mixt actions remain still a middle Colour. To this mixed green there may be further added some red and violet, and yet the green will not presently cease but only grow less full and vivid, and by increasing the red and violet it will grow more and more dilute, until by the prevalence of the added Colours it be overcome and turned into whiteness, or some other Colour. So if to the Colour of any homogeneous Light, the Sun's white Light composed of all sorts of rays be

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